

WHAT IS CLAIMED IS:

1. (Cancelled) ~~A supporting system, comprising:
a carrying member for carrying thereon a workpiece; and
a supporting mechanism having a magnet, for supporting a weight of said
carrying member;
wherein a supporting force to be provided by said magnet does not change
with a shift of said carrying member along a plane perpendicular to a direction in which the
weight is supported.~~
2. (Cancelled) ~~A supporting system according to Claim 1, wherein said supporting
mechanism has a magnet and a magnetic member, and wherein said magnet and said magnet
member differ from each other in respect to a size in a direction perpendicular to a direction
in which a force operates between said magnet and said magnet member.~~
3. (Cancelled) ~~A supporting system according to Claim 1, wherein said supporting
mechanism includes plural magnets for mutually operating a force, wherein one magnet
differs from another magnet in respect to a size in a direction perpendicular to a direction in
which a force operates between the magnets.~~
4. (Cancelled) ~~A supporting system according to Claim 1, wherein said supporting
mechanism includes a magnetic member and an electromagnet, wherein said magnetic~~

~~member and said electromagnet differ from each other in respect to a size in a direction perpendicular to a direction in which a force operates between said magnetic member and said electromagnet.~~

5. (Cancelled) ~~A supporting system according to Claim 4, wherein each of said magnetic member and said electromagnet comprises a layered structure of thin magnetic material plates.~~

6. (Cancelled) ~~A supporting system according to Claim 4, further comprising a controller for controlling an electric current to said electromagnet.~~

7. (Cancelled) ~~A supporting system according to Claim 6, further comprising a detector for detecting a clearance between said electromagnet and said magnetic member, and a circuit for feedback of a signal related to the detected clearance to an electric current to be applied to said electromagnet.~~

8. (Cancelled) ~~A supporting system according to Claim 1, further comprising a position controller for positioning said carrying member, wherein plural supporting mechanism are disposed so as not to produce a moment to said position controller.~~

9. (Cancelled) ~~A supporting system, comprising:~~
~~a carrying member for carrying thereon a workpiece; and~~
~~a supporting mechanism for supporting said carrying member, said supporting mechanism having a first element for producing a resisting force to a shift in a supporting direction, and a second element for producing a force for increasing the shift in the supporting direction;~~
~~wherein said second element can produce a force for moving said carrying member downwardly.~~

10. (Cancelled) ~~A supporting system according to Claim 9, wherein said supporting mechanism includes a spring element and a magnet element.~~

11. (Cancelled) ~~A supporting system according to Claim 10, wherein, adjacent a workpiece processing position for the workpiece, a weight of said carrying member and a combined force of said first and second elements are substantially equal to each other.~~

12. (Cancelled) ~~A supporting system, comprising:~~
~~a carrying member for carrying a workpiece thereon; and~~
~~a supporting mechanism for supporting said carrying member from a workpiece transfer position to a workpiece processing position, said supporting mechanism~~

~~having a first element for producing a resisting force to a shift in a supporting direction, and a second element for producing a force to increase a shift in the supporting direction.~~

13. (Cancelled) ~~A supporting system according to claim 12, wherein said second element for producing a force to increase the shift produces a force to move said carrying member downwardly.~~

14. (Cancelled) ~~A supporting system according to Claim 12, wherein, adjacent to the workpiece processing position, the weight of said carrying member and a combined force of said first and second elements are approximately equal to each other.~~

15. (Cancelled) ~~A supporting system according to Claim 12, wherein the force to be produced by said second element is larger at the transfer position than at the workpiece processing position.~~

16. (Cancelled) ~~A supporting system according to Claim 12, wherein said first and second elements include a spring element and a magnet element.~~

17. (Cancelled) ~~A supporting system, comprising:~~

~~a carrying member for carrying a workpiece thereon, and~~

~~a supporting mechanism for supporting said carrying member from a workpiece transfer position to a workpiece processing position, said supporting mechanism having a spring element and a magnet element;~~

~~wherein, adjacent the workpiece processing position, the weight of said carrying member and a combined force of said spring element and said magnet element are approximately equal to each other, and wherein said magnet element has a magnet with a clearance which is smaller at the transfer position than at the workpiece processing position.~~

18. (Cancelled) ~~A supporting system according to Claim 17, wherein, at a certain position, the clearance of the magnet of said magnet element is smaller than that at the workpiece processing position, and at that position, the weight of said carrying member and the combined force of said spring element and said magnet element are approximately equal to each other.~~

19. (Cancelled) ~~A supporting system according to Claim 17, wherein an absolute value of a changing rate of the force of said magnet element with respect to a change in clearance of the magnet, adjacent the workpiece processing position, is set smaller than an absolute value of a changing rate of the force of said spring element with respect to a change in the clearance of the magnet.~~

20. (Cancelled) ~~A supporting system, comprising:~~

~~a carrying member for carrying a workpiece thereon; and~~

~~a supporting mechanism for supporting said carrying member from a workpiece transfer position to a workpiece processing position, said supporting mechanism having a spring element and a magnet element;~~

~~wherein, adjacent the workpiece processing position, the weight of said carrying member and a combined force of said spring element and said magnet element are approximately equal to each other, and wherein said magnet element has a magnet with a clearance which is larger at the transfer position than at the workpiece processing position.~~

21. (Cancelled) ~~A supporting system according to Claim 20, wherein, at a certain position, the clearance of the magnet of said magnet element is larger than that at the workpiece processing position, and at that position, the weight of said carrying member and the combined force of said spring element and said magnet element are approximately equal to each other.~~

22. (Cancelled) ~~A supporting system according to Claim 20, wherein an absolute value of a changing rate of the force of said magnet element with respect to a change in clearance of the magnet, adjacent the workpiece processing position, is set larger than an absolute value of a changing rate of the force of said spring element with respect to a change in the clearance of the magnet.~~

23. (Cancelled) ~~A supporting system, comprising:~~

~~a carrying member for carrying a workpiece thereon; and~~

~~a supporting mechanism for supporting said carrying member from a
workpiece transfer position to a workpiece processing position, said supporting mechanism
having a spring element and a magnet element;~~

~~wherein an absolute value of a changing rate of the force of said magnet
element with respect to a change in clearance of the magnet, adjacent the workpiece
processing position, is set smaller than an absolute value of a changing rate of the force of
said spring element with respect to a change in the clearance of the magnet.~~

24. (Cancelled) ~~A supporting system, comprising:~~

~~a carrying member for carrying a workpiece thereon; and~~

~~a supporting mechanism for supporting said carrying member from a
workpiece transfer position to a workpiece processing position, said supporting mechanism
having a spring element and a magnet element;~~

~~wherein an absolute value of a changing rate of the force of said magnet
element with respect to a change in clearance of the magnet, adjacent the workpiece
processing position, is set larger than an absolute value of a changing rate of the force of said
spring element with respect to a change in the clearance of the magnet.~~

25. (Cancelled) ~~A supporting system, comprising:~~
~~a carrying member for carrying a workpiece thereon; and~~
~~a supporting mechanism for supporting said carrying member from a~~
~~workpiece transfer position to a workpiece processing station;~~
~~wherein, adjacent to the transfer position, the weight of said carrying member~~
~~and a force to be applied to said carrying member are substantially balanced, and wherein,~~
~~adjacent the workpiece processing position, the weight of said carrying member and a force to~~
~~be applied to said carrying member are substantially balanced.~~

26. (Cancelled) ~~A supporting system according to Claim 25, wherein said supporting~~
~~mechanism has a first element for producing a resisting force to a shift in a supporting~~
~~direction, and a second element for producing a force for increasing the shift in the supporting~~
~~direction.~~

27. (Cancelled) ~~A supporting mechanism according to Claim 25, wherein said~~
~~supporting mechanism includes a spring element and a magnet element.~~

28. (Original) An exposure apparatus, comprising:
a carrying member for carrying thereon a workpiece; and
a supporting mechanism having a magnet, for supporting a weight of said
carrying member;

wherein a force to be applied to said magnet does not change with a shift of said carrying member along a plane perpendicular to a direction in which the weight is supported.

29. (Original) An exposure apparatus, comprising:

a carrying member for carrying thereon a workpiece; and

a supporting mechanism for supporting said carrying member, said supporting mechanism having an element for producing a force to increase/decrease a shift in a supporting direction, wherein, as the shift in the supporting direction increases, said carrying member is moved downwardly.

30. (Original) An exposure apparatus, comprising:

a carrying member for carrying a workpiece thereon; and

a supporting mechanism for supporting said carrying member from a workpiece transfer position to a workpiece processing position, said supporting mechanism having a first element for producing a resisting force to a shift in a supporting direction, and a second element for producing a force to increase a shift in the supporting direction.

31. (Original) An exposure apparatus, comprising:

a carrying member for carrying a workpiece thereon; and

a supporting mechanism for supporting said carrying member from a workpiece transfer position to a workpiece processing position, said supporting mechanism having a spring element and a magnet element;

wherein, adjacent the workpiece processing position, the weight of said carrying member and a combined force of said spring element and said magnet element are approximately equal to each other, and wherein said magnet element has a magnet with a clearance which is smaller at the transfer position than at the workpiece processing position.

32. (Original) An exposure apparatus, comprising:

a carrying member for carrying a workpiece thereon; and

a supporting mechanism for supporting said carrying member from a workpiece transfer position to a workpiece processing position, said supporting mechanism having a spring element and a magnet element;

wherein, adjacent the workpiece processing position, the weight of said carrying member and a combined force of said spring element and said magnet element are approximately equal to each other, and wherein said magnet element has a magnet with a clearance which is larger at the transfer position than at the workpiece processing position.

33. (Original) An exposure apparatus, comprising:

a carrying member for carrying a workpiece thereon; and

a supporting mechanism for supporting said carrying member from a workpiece transfer position to a workpiece processing position, said supporting mechanism having a spring element and a magnet element;

wherein an absolute value of a changing rate of the force of said magnet element with respect to a change in clearance of the magnet, adjacent the workpiece processing position, is set smaller than an absolute value of a changing rate of the force of said spring element with respect to a change in the clearance of the magnet.

34. (Original) An exposure apparatus, comprising:

a carrying member for carrying a workpiece thereon; and

a supporting mechanism for supporting said carrying member from a workpiece transfer position to a workpiece processing position, said supporting mechanism having a spring element and a magnet element;

wherein an absolute value of a changing rate of the force of said magnet element with respect to a change in clearance of the magnet, adjacent the workpiece processing position, is set larger than an absolute value of a changing rate of the force of said spring element with respect to a change in the clearance of the magnet.

35. (Original) An exposure apparatus, comprising:

a carrying member for carrying a workpiece thereon; and

a supporting mechanism for supporting said carrying member from a workpiece transfer position to a workpiece processing position;

wherein, adjacent the transfer position, the weight of said carrying member and a force to be applied to said carrying member are substantially balanced, and wherein, adjacent the workpiece processing position, the weight of said carrying member and a force to be applied to said carrying member are substantially balanced.

36. (Original) A device manufacturing method, comprising the steps of:

preparing an exposure apparatus as recited in any one of Claims 28-35;

applying a resist to a wafer;

exposing the wafer by use of the exposure apparatus; and

developing the exposed wafer.